

# Work Order ID 161799

**\*161799\***

Page 1

Tuesday, May 23, 2017 9:42:08 AM

Item ID: D2944 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Step Mounting Plate  
 Start Date: 5/31/2017 Start Qty: 40.00 **\*40\*** Cust Item ID:  
 Required Date: 6/9/2017 Req'd Qty: 40.00 **\*40\*** Customer:  
 Reference:

Approvals: Process Plan: DAS 21 Date: **MAY 23 2017** Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: 9-89 Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                                                                   | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------------------------------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| <b>Draw Nbr</b>                | <b>Revision Nbr</b>                                                                        |                      |         |        |              |               |               |                  |                |
| D2944                          | Rev A                                                                                      |                      |         |        |              |               |               |                  |                |
| 100                            | FLOW WATER JET                                                                             | 0.01                 |         |        |              |               |               |                  |                |
| <b>*100*</b>                   |                                                                                            |                      |         |        |              |               |               |                  |                |
| Waterjet                       | Memo                                                                                       | 1.18                 |         |        |              |               |               |                  |                |
| FLOW CNC Waterjet              | 1-Cut as per Dwg D2944<br>Dwg Rev: <u>7</u><br>Prog Rev: <u>A</u><br>2-Deburr if necessary |                      |         |        |              |               |               |                  |                |
| 110                            | QC2- Inspect parts off machine FAI/FAIB                                                    | 0.00                 |         |        |              |               |               |                  |                |
| <b>*110*</b>                   |                                                                                            |                      |         |        |              |               |               |                  |                |
| QC                             | Memo                                                                                       | 0.40                 |         |        |              |               |               |                  |                |
| Quality Control                |                                                                                            |                      |         |        |              |               |               |                  |                |
| 120                            | QC8- Inspect parts - second check                                                          | 0.00                 |         |        |              |               |               |                  |                |
| <b>*120*</b>                   |                                                                                            |                      |         |        |              |               |               |                  |                |
| QC                             | Memo                                                                                       | 0.80                 |         |        |              |               |               |                  |                |
| Quality Control                |                                                                                            |                      |         |        |              |               |               |                  |                |

DAS  
20  
9-89

DAS  
20  
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DAS  
38  
20

MAY 29 2017

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only

| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> </div> |                                                            |  |            |  |                |  |                                      |                                             |                                          |                                           |                                 |                                   |                                  |                                 |                                   |                                       |                                                |                                    |                                        |                                   |                                 |                                               |                                       |                                   |                                                 |                                                            |                                   |                                          |                                |                                        |                                             |                                           |                                   |                                      |                                           |                                  |                                     |                                        |                              |                                              |                                             |                                                          |                                     |                                              |                                        |                                      |                                           |                                                |               |  |                                        |                                   |
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| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left;">Root Cause</th> <th colspan="2" style="text-align: left;">FAULT CATEGORY</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Environment</td> <td><input type="checkbox"/> No Re-verification</td> <td><input type="checkbox"/> Pressure/Forced</td> <td><input type="checkbox"/> Temperature/Cure</td> </tr> <tr> <td><input type="checkbox"/> Design</td> <td><input type="checkbox"/> Operator</td> <td><input type="checkbox"/> Bending</td> <td><input type="checkbox"/> Set-up</td> </tr> <tr> <td><input type="checkbox"/> Doc/Data</td> <td><input type="checkbox"/> Offset/Setup</td> <td><input type="checkbox"/> Centre Not Concentric</td> <td><input type="checkbox"/> BOM/Route</td> </tr> <tr> <td><input type="checkbox"/> Equip/Tooling</td> <td><input type="checkbox"/> Supplier</td> <td><input type="checkbox"/> Cracks</td> <td><input type="checkbox"/> Broken/Damage/Defect</td> </tr> <tr> <td><input type="checkbox"/> Handling/Pre</td> <td><input type="checkbox"/> Training</td> <td><input type="checkbox"/> Crimp/Kink/Ripple/Wave</td> <td><input type="checkbox"/> Inspection Incomplete/Unqualified</td> </tr> <tr> <td><input type="checkbox"/> Material</td> <td><input type="checkbox"/> Use for Testing</td> <td><input type="checkbox"/> Cuffs</td> <td><input type="checkbox"/> Contamination</td> </tr> <tr> <td><input type="checkbox"/> Internal Transport</td> <td><input type="checkbox"/> Poor Information</td> <td><input type="checkbox"/> Crushing</td> <td><input type="checkbox"/> Countersink</td> </tr> <tr> <td><input type="checkbox"/> Tribal Knowledge</td> <td><input type="checkbox"/> Rushing</td> <td><input type="checkbox"/> Heat Treat</td> <td><input type="checkbox"/> Cut Too Short</td> </tr> <tr> <td><input type="checkbox"/> LOA</td> <td><input type="checkbox"/> Product Improvement</td> <td><input type="checkbox"/> Wave/Twist in Tube</td> <td><input type="checkbox"/> Instructions Incomplete/Unclear</td> </tr> <tr> <td><input type="checkbox"/> Substation</td> <td><input type="checkbox"/> Process Improvement</td> <td><input type="checkbox"/> Marks/Chatter</td> <td><input type="checkbox"/> Drill Holes</td> </tr> <tr> <td><input type="checkbox"/> Past Expiry Date</td> <td><input type="checkbox"/> Manufacturing Process</td> <td colspan="2" rowspan="2" style="vertical-align: top;">OTHER : _____</td> </tr> <tr> <td><input type="checkbox"/> Misidentified</td> <td><input type="checkbox"/> Past Due</td> </tr> </tbody> </table> |                                                                                                                                                                                    |                                                                                                                                                                                                                                     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Offset/Setup | <input type="checkbox"/> Centre Not Concentric | <input type="checkbox"/> BOM/Route | <input type="checkbox"/> Equip/Tooling | <input type="checkbox"/> Supplier | <input type="checkbox"/> Cracks | <input type="checkbox"/> Broken/Damage/Defect | <input type="checkbox"/> Handling/Pre | <input type="checkbox"/> Training | <input type="checkbox"/> Crimp/Kink/Ripple/Wave | <input type="checkbox"/> Inspection Incomplete/Unqualified | <input type="checkbox"/> Material | <input type="checkbox"/> Use for Testing | <input type="checkbox"/> Cuffs | <input type="checkbox"/> Contamination | <input type="checkbox"/> Internal Transport | <input type="checkbox"/> Poor Information | <input type="checkbox"/> Crushing | <input type="checkbox"/> Countersink | <input type="checkbox"/> Tribal Knowledge | <input type="checkbox"/> Rushing | <input type="checkbox"/> Heat Treat | <input type="checkbox"/> Cut Too Short | <input type="checkbox"/> LOA | <input type="checkbox"/> Product Improvement | 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| <input type="checkbox"/> Misidentified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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**Work Order ID 161799**

Tuesday, May 23, 2017 9:42:08 AM

**\*161799\***

Page 2

Item ID: D2944 Accept **\*N900040100\*** Setup Start **\*NS1\***  
Revision ID: Stop **\*NS2\***  
Item Name: Step Mounting Plate  
Start Date: 5/31/2017 Start Qty: 40.00 **\*40\*** Cust Item ID:  
Required Date: 6/9/2017 Req'd Qty: 40.00 **\*40\*** Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                           | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|----------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 130                            | Identify as per dwg & Stock Location: <u>WA003</u> | 0.00                 |         |        |              |               |               |                  |                |
| <b>*130*</b>                   |                                                    |                      |         |        |              | <u>40X</u>    | <u>SP</u>     |                  | MAY 29 2017    |
| Packaging                      | Memo                                               | 0.40                 |         |        |              |               |               |                  |                |
| Packaging                      | *** STOCK IN STEP CELL***<br>LOCATION WA003        |                      |         |        |              |               |               |                  |                |
| 140                            | QC21- Final Inspection - Work Order Release        | 0.00                 |         |        |              |               |               |                  |                |
| <b>*140*</b>                   |                                                    |                      |         |        |              |               |               |                  |                |
| QC                             | Memo                                               | 4.00                 |         |        |              |               |               |                  |                |
| Quality Control                |                                                    |                      |         |        |              |               |               |                  |                |

DAS  
21  
9-89

MAY 29 2017

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  |
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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Step #: _____                                                                                                                                                                      | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |
| <b>Description Work Order Deviation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                    | <b>Disposition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
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| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div>           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex; justify-content: space-between;"> <div>           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div>           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> <div>           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Misabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> </div> |  |  |  |
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Tuesday, May 23, 2017 9:42:07 AM

Page 1

Work Order ID: 161799

\*161799\*

Parent Item: D2944

\*D2944\*

Parent Item Name: Step Mounting Plate

Start Date: 5/31/2017

Required Date: 6/9/2017

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP B04.01.21Reformat; Added Step 6KJ/RF  
IPP C 06.07.21 waterjet EC

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued        | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|-----------------------|--------|
| M6061T6S.188                    |                        | Purchased     | No          |                     |                  | 100             | sf                 | 27.1200        | 0.07        | 2.947368     |               | <del>20</del><br>9-89 |        |
| **                              |                        |               |             |                     |                  |                 |                    |                |             |              |               | 17/05/29              |        |
| *M6061T6S 188*                  |                        |               |             |                     |                  |                 |                    |                |             |              |               |                       |        |
| 6061-T6 .188 Sheet              |                        |               |             |                     |                  |                 |                    |                |             |              |               |                       |        |

Location

Loc Qty

Loc Code

MAT020

27.12

m129146

3.75

m137041

23.37

3

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only

| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplies <input type="checkbox"/> </div> </div> |                                                            |                                                |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                               |  |                                       |                                   |                                                 |                                                            |                                             |  |                                   |                                          |                                |                                        |                                          |  |                                             |                                           |                                   |                                      |                                  |  |                                           |                                  |                                     |                                        |                                     |  |                              |                                              |                                             |                                                          |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
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| <b>Description Work Order Deviation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left;">Root Cause</th> <th colspan="4" style="text-align: left;">FAULT CATEGORY</th> </tr> </thead> <tbody> <tr> <td>Environment <input type="checkbox"/></td> <td>No Re-verification <input type="checkbox"/></td> <td>Pressure/Forced <input type="checkbox"/></td> <td>Temperature/Cure <input type="checkbox"/></td> <td>Power Loss/Surge <input type="checkbox"/></td> <td></td> </tr> <tr> <td>Design <input type="checkbox"/></td> <td>Operator <input type="checkbox"/></td> <td>Bending <input type="checkbox"/></td> <td>Set-up <input type="checkbox"/></td> <td>Folio/Program <input type="checkbox"/></td> <td></td> </tr> <tr> <td>Doc/Data <input type="checkbox"/></td> <td>Offset/Setup <input type="checkbox"/></td> <td>Centre Not Concentric <input type="checkbox"/></td> <td>BOM/Route <input type="checkbox"/></td> <td>Grain <input type="checkbox"/></td> <td></td> </tr> <tr> <td>Equip/Tooling <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td>Cracks <input type="checkbox"/></td> <td>Broken/Damage/Defect <input type="checkbox"/></td> <td>Weld <input type="checkbox"/></td> <td></td> </tr> <tr> <td>Handling/Pre <input type="checkbox"/></td> <td>Training <input type="checkbox"/></td> <td>Crimp/Kink/Ripple/Wave <input type="checkbox"/></td> <td>Inspection Incomplete/Unqualified <input type="checkbox"/></td> <td>Wrong Stock Pulled <input type="checkbox"/></td> <td></td> </tr> <tr> <td>Material <input type="checkbox"/></td> <td>Use for Testing <input type="checkbox"/></td> <td>Cuffs <input type="checkbox"/></td> <td>Contamination <input type="checkbox"/></td> <td>Out of Sequence <input type="checkbox"/></td> <td></td> </tr> <tr> <td>Internal Transport <input type="checkbox"/></td> <td>Poor Information <input type="checkbox"/></td> <td>Crushing <input type="checkbox"/></td> <td>Countersink <input type="checkbox"/></td> <td>Off-set <input type="checkbox"/></td> <td></td> </tr> <tr> <td>Tribal Knowledge <input type="checkbox"/></td> <td>Rushing <input type="checkbox"/></td> <td>Heat Treat <input type="checkbox"/></td> <td>Cut Too Short <input type="checkbox"/></td> <td>Mislabeled <input type="checkbox"/></td> <td></td> </tr> <tr> <td>LOA <input type="checkbox"/></td> <td>Product Improvement <input type="checkbox"/></td> <td>Wave/Twist in Tube <input type="checkbox"/></td> <td>Instructions Incomplete/Unclear <input type="checkbox"/></td> <td>Fit/Function <input type="checkbox"/></td> <td></td> </tr> <tr> <td>Substation <input type="checkbox"/></td> <td>Process Improvement <input type="checkbox"/></td> <td>Marks/Chatter <input type="checkbox"/></td> <td>Drill Holes <input type="checkbox"/></td> <td>Misaligned/off center <input type="checkbox"/></td> <td></td> </tr> <tr> <td>Past Expiry Date <input type="checkbox"/></td> <td>Manufacturing Process <input type="checkbox"/></td> <td colspan="4"></td> </tr> <tr> <td>Misidentified <input type="checkbox"/></td> <td>Past Due <input type="checkbox"/></td> <td colspan="4">OTHER : _____</td> </tr> </tbody> </table> |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                            |                                                |  | Root Cause |  | FAULT CATEGORY |  |  |  | Environment <input type="checkbox"/> | No Re-verification <input type="checkbox"/> | Pressure/Forced <input type="checkbox"/> | Temperature/Cure <input type="checkbox"/> | Power Loss/Surge <input type="checkbox"/> |  | Design <input type="checkbox"/> | Operator <input type="checkbox"/> | Bending <input type="checkbox"/> | Set-up <input type="checkbox"/> | Folio/Program <input type="checkbox"/> |  | Doc/Data <input type="checkbox"/> | Offset/Setup <input type="checkbox"/> | Centre Not Concentric <input type="checkbox"/> | BOM/Route <input type="checkbox"/> | Grain <input type="checkbox"/> |  | Equip/Tooling <input type="checkbox"/> | Supplier <input type="checkbox"/> | Cracks <input type="checkbox"/> | Broken/Damage/Defect <input type="checkbox"/> | Weld <input type="checkbox"/> |  | Handling/Pre <input type="checkbox"/> | Training <input type="checkbox"/> | Crimp/Kink/Ripple/Wave <input type="checkbox"/> | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/> |  | Material <input type="checkbox"/> | Use for Testing <input type="checkbox"/> | Cuffs <input type="checkbox"/> | Contamination <input type="checkbox"/> | Out of Sequence <input type="checkbox"/> |  | Internal Transport <input type="checkbox"/> | Poor Information <input type="checkbox"/> | Crushing <input type="checkbox"/> | Countersink <input type="checkbox"/> | Off-set <input type="checkbox"/> |  | Tribal Knowledge <input type="checkbox"/> | Rushing <input type="checkbox"/> | Heat Treat <input type="checkbox"/> | Cut Too Short <input type="checkbox"/> | Mislabeled <input type="checkbox"/> |  | LOA <input type="checkbox"/> | Product Improvement <input type="checkbox"/> | Wave/Twist in Tube <input type="checkbox"/> | Instructions Incomplete/Unclear <input type="checkbox"/> | Fit/Function <input type="checkbox"/> |  | Substation <input type="checkbox"/> | Process Improvement <input type="checkbox"/> | Marks/Chatter <input type="checkbox"/> | Drill Holes <input type="checkbox"/> | Misaligned/off center <input type="checkbox"/> |  | Past Expiry Date <input type="checkbox"/> | Manufacturing Process <input type="checkbox"/> |  |  |  |  | Misidentified <input type="checkbox"/> | Past Due <input type="checkbox"/> | OTHER : _____ |  |  |  |
| Root Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| Environment <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No Re-verification <input type="checkbox"/>                                                                                                                                        | Pressure/Forced <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>      |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                             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                        |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
| Design <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Operator <input type="checkbox"/>                                                                                                                                                  | Bending <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>         |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                             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                        |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
| Doc/Data <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Offset/Setup <input type="checkbox"/>                                                                                                                                              | Centre Not Concentric <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                 |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                             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                        |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
| Equip/Tooling <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Supplier <input type="checkbox"/>                                                                                                                                                  | Cracks <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                  |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                             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                        |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
| Handling/Pre <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Training <input type="checkbox"/>                                                                                                                                                  | Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>    |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                             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                        |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
| Material <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Use for Testing <input type="checkbox"/>                                                                                                                                           | Cuffs <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>       |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                             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                        |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
| Internal Transport <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Poor Information <input type="checkbox"/>                                                                                                                                          | Crushing <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>               |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                             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                        |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
| Tribal Knowledge <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Rushing <input type="checkbox"/>                                                                                                                                                   | Heat Treat <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>            |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                             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                        |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
| LOA <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Product Improvement <input type="checkbox"/>                                                                                                                                       | Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>          |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                             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                        |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
| Substation <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Process Improvement <input type="checkbox"/>                                                                                                                                       | Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/> |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                             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                        |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
| Past Expiry Date <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Manufacturing Process <input type="checkbox"/>                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                            |                                                |  |            |  |                |  |  |  |                                      |                                             |                                          |                                           |                                           |  |                                 |                                   |                                  |                                 |                                        |  |                                   |                                       |                                                |                                    |                                |  |                                        |                                   |                                 |                                               |                             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                        |                                       |  |                                     |                                              |                                        |                                      |                                                |  |                                           |                                                |  |  |  |  |                                        |                                   |               |  |  |  |
| Misidentified <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Past Due <input type="checkbox"/>                                                                                                                                                  | OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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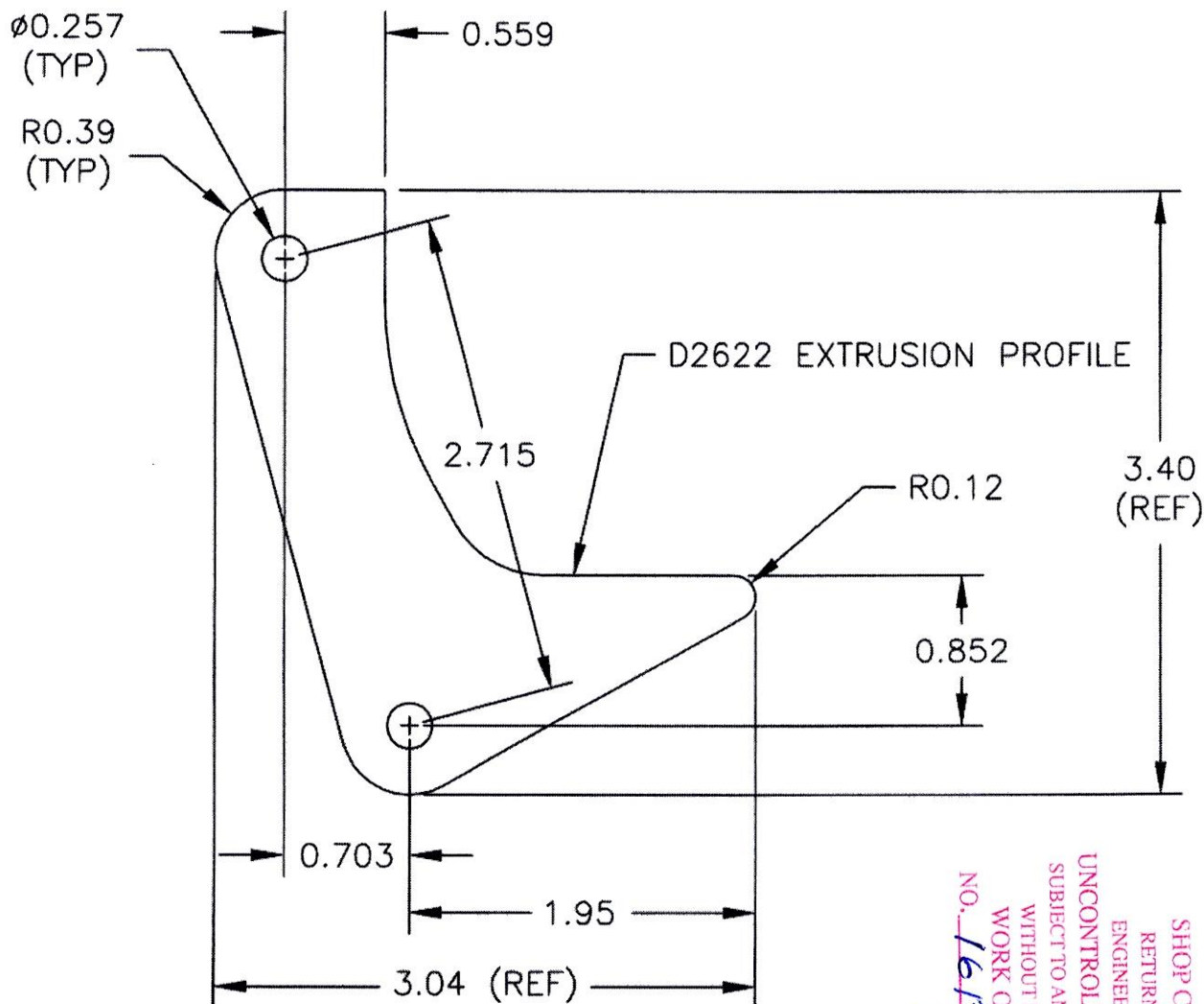






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|-------------------------------|--------------------------------|---------------------------------------------------|------------------------|
| DESIGN<br><i>CP</i>           | DRAWN BY<br><i>CP</i>          | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA |                        |
| CHECKED<br><i>[Signature]</i> | APPROVED<br><i>[Signature]</i> | DRAWING NO.<br>D2944                              | REV. A<br>SHEET 1 OF 1 |
| DATE<br>99.12.13              |                                | TITLE<br>STEP MOUNTING PLATE                      | SCALE<br>1:1           |
| A                             | 99.12.13                       | NEW ISSUE                                         |                        |

RELEASED  
99.12.21 DS



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UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 161799.425  
17-05-23

MATERIAL: 6061-T6 ALUMINUM (QQ-A-250/11) 0.188 THICK  
BREAK ALL SHARP EDGES 0.010 TO 0.020 MAX  
TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED  
ALL DIMENSIONS ARE IN INCHES